

The Integrative Application of Conceptual Metaphor in English Vocabulary Teaching

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Abstract— This literature review selects domestic and international literature based on the application of conceptual metaphors in English vocabulary teaching in the past thirty years. After sorting and summarizing, it is found that both domestic and foreign literature have confirmed the feasibility and effectiveness of conceptual metaphors in English vocabulary teaching; some scholars have also found that the application of conceptual metaphors in teaching can help students to better maintain short-term vocabulary memory and independently transfer theories to the acquisition of new words; and some scholars also found that the application of conceptual metaphors in English vocabulary teaching can effectively alleviate the effect of negative transfer of the first language. The application of conceptual metaphors in second language teaching is becoming more and more mature, but there are still some problems, for example, the selection of subjects is fixed, the range of vocabulary is narrow, and it is not known how conceptual metaphors work in the teaching... Nevertheless, these shortcomings can be a source of inspiration for future research.

Keywords— cognitive linguistics, conceptual metaphor, second language vocabulary, vocabulary teaching

I. INTRODUCTION

Vocabulary is the cornerstone of language learning. If the process of foreign-language learning is likened to constructing a high-rise building, vocabulary constitutes the foundation. As the British applied linguist D. A. Wilkins famously remarked, “Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed.” H. G. Widdowson likewise contends that, in terms of communicative function and the expressive resources of language, lexis is primary and grammar secondary. Accordingly, the importance of lexical learning has been widely acknowledged in the field.

Nevertheless, several problems persist in vocabulary pedagogy. English vocabulary teaching still largely relies on traditional rote memorization: teachers tend to adopt conventional, low-efficiency methods, presenting decontextualized word lists with limited attention to usage or discourse context. Learners, for their part, memorize forms mechanically without grasping the denotational and connotational range of items, which leads to frequent

misinterpretation and inflexible use. Although such cramming may yield short-term retention of word meanings, it is far less effective for long-term maintenance, for acquiring context-dependent extended senses, or for deploying vocabulary productively in communication. The aim of vocabulary instruction should not be merely to have students recall an item’s basic meaning; more crucially, it should foster robust, nuanced lexical knowledge and flexible use, thereby enhancing accuracy in lexical deployment and, ultimately, their overall second-language (L2) proficiency.

In 1980, the publication of Lakoff and Johnson’s *Metaphors We Live By* marked the true beginning of research on conceptual metaphor. Conceptual metaphor, in brief, refers to understanding and experiencing a less familiar, abstract, and hard-to-grasp concept in terms of a more familiar and concrete one. This proceeds via mappings from a source domain to a target domain and is grounded in shared human experience. Authors argue that metaphor is pervasive in our daily life: our language, our thoughts, and the very conceptual system that undergirds

human activity are fundamentally metaphorical in nature. Indeed, the formation and meanings of a considerable portion of lexical items are motivated by metaphor. Metaphor is therefore closely related to language learning, and to vocabulary learning in particular.

In the Chinese context, the application of conceptual metaphor to English vocabulary teaching began relatively late, and to date, there has been no review article that systematically synthesizes its current state of development, future trends, and existing problems. Accordingly, this literature review surveys research from the past three decades, both domestic and international, with the aim of summarizing the achievements to date in integrating conceptual metaphor into English vocabulary instruction, identifying avenues for further expansion, and diagnosing present limitations. The goal is to foster a deeper understanding of the integration between conceptual metaphor and English vocabulary pedagogy.

II. THEORETICAL FOUNDATIONS

2.1 The Cognitive Linguistic Basis of Conceptual Metaphor

In the era of traditional metaphor studies, metaphor was treated as a rhetorical figure whose function was to make discourse more vivid and aesthetically appealing. This view, however, confined metaphor to the shell of language itself. With the rise of cognitive linguistics, scholars began to ground inquiry in the basic principle of “reality–cognition–language,” taking human experience and perception as foundational and, from a cognitive perspective, probing the substance and characteristics of the mechanisms that underlie metaphor comprehension.

The publication of Lakoff and Johnson’s *Metaphors We Live By* (1980) ushered cognitive linguistics into a new stage of development. The suite of theories concerning conceptual metaphor broadened the horizons of semantic research and offered a renewed understanding of the longstanding linguistic problem of “meaning.”

2.2 Definition of Conceptual Metaphor

Building on Lakoff and Johnson’s characterization in *Metaphors We Live By*, conceptual metaphor may be defined as a cognitively grounded account of metaphor: it is a way of understanding or experiencing one entity in terms of another. As such, metaphor is not merely a rhetorical device; it constitutes a fundamental mode of human cognition.

2.3 Mechanism of Conceptual Metaphor

At its core, conceptual metaphor involves understanding and experiencing one class of phenomena in terms of

another—using something concrete and familiar to make sense of something abstract and unfamiliar. Such cross-domain understanding presupposes some perceived similarity between the two. Two key notions are the source domain and the target domain: the source domain comprises entities that are concrete, familiar, known, and readily definable, whereas the target domain comprises entities that are abstract, unfamiliar, unknown, and hard to define. The directional interaction from source to target—i.e., mapping—constitutes the operative mechanism of conceptual metaphor.

2.4 Classes of Conceptual Metaphor

According to Lakoff and Johnson, conceptual metaphors fall into three broad classes: structural metaphors, orientational metaphors, and ontological metaphors.

2.5 Conceptual Metaphor and Dual Coding Theory

Why can conceptual metaphor be leveraged in English vocabulary instruction? The Dual Coding Theory (DCT) proposed by Paivio and Desrochers (1980) provides a compelling answer. DCT posits the coexistence, in bilingual cognition, of a verbal system (encompassing the L1 and L2 language systems) and a nonverbal system (also called the imagery system). These two systems can operate independently or interactively. Empirical findings suggest that information encoded by both systems is comprehended and remembered at roughly twice the level of information encoded by a single system. Specifically, concrete lexical items are typically processed in the form of image schemas and stored across both systems, whereas abstract concepts tend to be represented only within the verbal system; as a result, abstract concepts are generally more difficult to understand and remember than concrete ones.

Conceptual metaphor functions precisely by concretizing abstract concepts. When learning the abstract, extended senses of lexical items, conceptual metaphors activate the imagery system, allowing it to participate in the processing of abstract meanings. This, in turn, strengthens learners’ comprehension and memory, and improves learning outcomes. It is therefore feasible to apply conceptual metaphor to the teaching of English prepositions in particular.

III. LITERATURE REVIEW

The integration of conceptual metaphor into vocabulary teaching has focused primarily on prepositions, polysemous words, and phrasal verbs. Among these, work on prepositions includes both theoretical and empirical studies, whereas research on polysemy and phrasal verbs is predominantly empirical. Accordingly, this review surveys

applications of conceptual metaphor to each of these areas in turn.

3.1 A Review of Conceptual Metaphor in the Teaching of English Prepositions

Within the English lexicon, prepositions constitute a special class of polysemous items. Their basic senses are spatial—high-frequency in everyday use and directly grounded in human perception and experience—yet their extended senses are both numerous and abstract. In many contexts of English-as-a-second-language instruction, traditional approaches to teaching prepositions rely chiefly on translation, verbal explanation, and the presentation of vivid illustrative pictures (Hung, 2017; Lőrincz & Gordon, 2012). Recent studies, however, indicate that such methods do not reliably foster genuine mastery of English prepositions or measurable gains in achievement (Lőrincz & Gordon, 2012). Cho (2010) further argues that these approaches depend heavily on simple memorization, with learners acquiring target items largely through rote learning; in his study, Japanese learners taught via traditional methods showed little subsequent improvement in performance. Against this backdrop, there has been a steady increase in studies that analyze the semantic networks of prepositions from a conceptual-metaphor perspective and implement such insights in pedagogy.

A substantial body of scholarship has applied conceptual metaphor to the teaching of English prepositions, and a subset has conducted empirical studies to assess its effectiveness. Boers (2000), through three experiments with intermediate-level learners of English residing in Belgium, examined the effect of metaphor awareness on L2 lexical retention. The findings indicated that explicit training in metaphor during language instruction can enhance learners' vocabulary memory and language-use skills. Boers also noted limitations: in all three experiments, participants' first languages (Dutch or French) are typologically close to English, and the metaphors motivating the "figurative expressions" under study are common in those L1s, which may have facilitated comprehension. Owing to cross-cultural differences, learners with other L1s might face greater difficulty; moreover, the results are restricted to learners at an intermediate proficiency level.

Similarly, Tyler et al. (2011) conducted an empirical study to evaluate a cognitive-linguistics-based approach to teaching the semantics of the prepositions *to*, *for*, and *at*. Fourteen professional translators whose L1 was Italian participated. The treatment asked learners to reason about each preposition's uses in terms of a polysemy network radiating from a central spatial scene, and to consider the role of metaphor in sense extension. Comparisons

between pretest and immediate posttest revealed significant score gains, indicating substantial improvement in these advanced learners' understanding of the three prepositions. The authors further argued that, although clear gains were observed on the pre- to posttest measures, a delayed posttest is essential to determine whether such gains reflect deeper understanding of extended meanings and of the processes (e.g., metaphor) by which they develop.

Song et al. (2015) compared a cognitive-linguistic instructional approach with a traditional translation-based approach. The lesson sequence comprised a warm-up, instruction using image schemas, and controlled practice, targeting the prepositions *in*, *on*, and *at*. The cognitive-linguistic condition drew on cross-domain mapping, conceptual metaphor theory, and the ITPC model, whereas the traditional condition relied on rote memorization and teacher-led verbal explanation. Posttest results showed that learners receiving the cognitive-linguistic treatment scored significantly higher than those in the traditional group; however, this study likewise did not include a delayed posttest.

Because the three studies above were conducted in European language communities (where the L1 is relatively close to English), subsequent work has tested whether conceptual-metaphor-based instruction is equally effective in settings where the learners' L1s differ more substantially from English. In Vietnam, Huong (2005) taught English textual vocabulary to Vietnamese learners using an image-schema-based approach. Participants were assigned to two groups receiving either image-schema instruction or traditional teacher-led verbal explanations. The results showed that the cognitive (image-schema) group significantly outperformed the traditional group on the posttest.

Building on Song (2015), Hung, Vien, and Vu (2018) conducted an empirical study with 50 Vietnamese university students of English as a second language. Drawing on cross-domain mapping, conceptual metaphor theory, and the ITPC model, they compared a cognitive-linguistic approach to instruction in both the spatial and metaphorical meanings of English prepositions with a traditional method. Ten prepositions were targeted: *above*, *among*, *at*, *after*, *beside*, *under*, *in*, *in front (of)*, *on*, and *under*. The findings paralleled Song's positive results: although the traditional group scored slightly higher on the pretest, both groups improved after instruction, and the cognitive group's gains on the immediate and subsequent posttests were markedly greater than those of the traditional group.

In the Chinese context, Chen and Xu (2009) examined 46 first-year senior high school students, comparing an image-schema-based approach with a translation-based approach for the polysemous prepositions *on*, *over*, and *above*. Their results showed that instruction grounded in image schemas was significantly more effective than translation-based instruction, indicating the strong pedagogical value of image-schema theory for teaching polysemous English prepositions. Liu and Li (2011) addressed a limitation in Tyler et al. (2011) by including a delayed posttest. Focusing on the preposition *in*, they investigated the feasibility of applying conceptual metaphor to preposition teaching with 130 Grade-12 students from a key high school in Shaanxi Province (control group: 66; experimental group: 64). The experimental group received instruction based on conceptual metaphor. Without prior notice to participants, a delayed posttest was administered 22 days later. The experimental group showed significant improvement on the immediate posttest and performed significantly better than the control group on both the posttest and the delayed posttest. The authors thus concluded that, relative to traditional preposition teaching, conceptual-metaphor-based instruction more effectively facilitates the teaching of *in*, supports learners' long-term retention, and aids inference about the extended senses of *in*.

3.2 A Review of Research on Teaching Polysemy through Conceptual Metaphor

Nation argues that "high-frequency words in language are obviously very important, and teachers and learners should spend a great deal of time on them" (2001, p. 16). However, Howards (1964) maintains that teaching polysemous words is particularly challenging, and that the difficulty stems from frequency: the more frequently a given word is used, the more senses it tends to develop. Consequently, when learners study high-frequency vocabulary, they are likely to encounter large numbers of polysemous items—words that possess multiple, semantically related senses (Lyons, 1977). Because of this polysemy, learners often find it difficult to discern intuitively how the seemingly disparate meanings are semantically related (Tyler & Evans, 2004).

Cognitive linguists contend that the development of a word's extended senses is grounded in human metaphorical thought. The various senses of a polysemous item are not random or unmotivated; rather, they are richly interconnected and systematically motivated. This claim provides strong justification for applying conceptual metaphor theory to language pedagogy, especially in the teaching of polysemy. Research on polysemy instruction from this perspective is largely empirical: most studies implement instructional interventions and employ multiple

instruments—tests, questionnaires, interviews, and the like—to investigate, from multiple dimensions of lexical knowledge, the advantages of conceptual-metaphor-based instruction over traditional approaches and its positive effects on learners.

Boers (2000) argues that diagrammatic/imagistic presentation can be used to introduce polysemous items. He conducted an experiment with 73 French L1 undergraduates majoring in Business English. Target items included trend-describing vocabulary such as *soar*, *skyrocket*, *plunge*, *dive*, *slide*, *peak*, as well as domains evoked by *aircraft*, *diving*, and *mountaineering*. Learners in the experimental group classified the lexical items by source domains involving airplanes, diving, and mountaineering—that is, they engaged in a degree of imagistic reasoning while processing the words. The control group classified the same items along a primary dimension marked by rate and direction of change. In the immediate posttest, both groups wrote a short essay based on two graphs showing unemployment rates. A tally of distinct "up/down" expressions in the essays revealed that the experimental group used substantially more such expressions than the control group. These findings suggest that making learners aware of the literal imagery underlying figurative uses of polysemous items facilitates vocabulary retention. Boers also noted, however, that the advantage appears stronger for short-term retention and less evident for long-term memory.

Similarly, Lindstromberg and Boers (2005) investigated 24 motion verbs (e.g., *hobble*, *stagger*, *teeter*, *veer*, *saunter*, *slump*, *flit*). Students in the experimental condition took turns acting out the verbs for peers to guess, whereas control participants provided verbal definitions for peers to identify. The results paralleled Boers (2000): on the immediate posttest, the experimental group remembered the verbs more readily than the control group, and on the delayed posttest they were also better at recognizing the verbs' metaphorical uses.

Other scholars have presented polysemy through sense extension from a central or prototypical meaning. For example, Csábi (2004) examined instruction on the polysemous verbs *hold* and *keep* with 52 Hungarian secondary students assigned to control and experimental groups. The experimental group received instruction grounded in conceptual metaphor and image schemas, while the control group was taught via translation. Both groups sat an immediate posttest and a delayed posttest (one day after instruction). The results showed that learners in the experimental group were significantly more likely to select the appropriate sense (i.e., higher sense-selection accuracy) than those in the control group.

Because conceptual-metaphor-based instruction for polysemy had shown positive effects with English L1 learners and learners whose L1s are typologically close to English, Morimoto and Loewen (2007) designed a study with 58 Japanese high school students to examine the effects of image-schema-based instruction (ISBI) versus translation-based instruction (TBI) on learners from a non-European language community. Target items included the verb *break* and the preposition *over*. Results indicated that both ISBI and TBI benefited learners' understanding and use of polysemous items, but ISBI was more effective in certain respects. The authors concluded that image schemas can serve as an effective pedagogical tool for teaching L2 polysemy.

Similarly, Cheng and Li (2016) investigated two cohorts totaling 84 first-year university students (non-English majors), using *over*—together with compounds where *over* functions as a prefix and phrasal verbs where *over* functions as a particle—as target items. Combining quantitative and qualitative methods, they assessed the impact of a cognitive-linguistic intervention on learning multiple senses. The control group received traditional translation-based instruction, whereas the experimental group was taught using cognitive-linguistic principles, including image schemas, conceptual metaphor, and techniques of construal and conceptual integration (blending), to explicate the cognitive motivation behind sense extension. Learners were then given example sentences and guided to infer the meanings of *over* in context and to understand how its semantic network is structured.

Findings showed that the experimental group significantly outperformed the control group in acquiring multiple senses, in identifying the cognitive motivations of derived senses, and in transferring cognitive strategies for semantic inference. Notably, students exposed to the cognitive-linguistic treatment were able to spontaneously transfer these strategies to infer senses of other polysemous items—an outcome not reported in prior research.

3.3 A Review of Research on Teaching Phrasal Verbs through Conceptual Metaphor

Phrasal verbs are widely regarded as particularly difficult for learners of English. The difficulties stem from at least two sources: (1) the opacity of many phrasal-verb meanings, and (2) the apparent arbitrariness of particle semantics noted by Side (1990). Within the framework of cognitive linguistics, however, many phenomena traditionally deemed arbitrary have been shown to be systematic. Because the semantics of the particle in a phrasal-verb construction exerts a strong influence on the

construction's overall meaning, most cognitive analyses of phrasal verbs focus on particles.

Lindner (1981), through analyses of *out* and *up*, argued that the meanings of English phrasal verbs are analyzable: the literal and metaphorical senses of particles are inseparable within a shared image schema and jointly shape the composite meaning of the construction. Lindner further suggested that the 134 particles occurring in phrasal verbs, like many other aspects of language, display extensive semantic coherence—an early and influential claim. In a similar vein, Lakoff (1987) conducted an in-depth study of the particle *over*, demonstrating how the spatial relation between an element designated as the Trajector and an element designated as the Landmark motivates a wide range of metaphorical extensions in particle meaning.

Early empirical work primarily examined the effectiveness of conceptual-metaphor-informed instruction for phrasal verbs. As early as 1996, Kövecses and Szabó investigated the use of phrasal verbs with *up* and *down* among thirty Hungarian learners. Fifteen students in the experimental group learned ten target phrasal verbs accompanied by explanations grounded in cognitive linguistics, designed to heighten awareness of the underlying conceptual metaphors (e.g., MORE IS UP, HAPPY IS UP). The fifteen students in the control group learned the same items via traditional translation. On an immediate gap-fill posttest, the experimental group outperformed the control group by nearly nine percentage points.

Similarly, Boers (2000) focused on phrasal verbs motivated by instantiated conceptual metaphors, such as VISIBLE IS OUT (*find out*, *turn out*) and VISIBLE IS UP (*look it up*, *show up*). Participants were French L1 students. The experimental group (n = 39) studied twenty-nine phrasal verbs presented through these metaphor instantiations, whereas the control group (n = 35) learned the same items through translation. On an immediate posttest covering the taught phrasal verbs, the experimental group scored markedly higher than the control group.

Condon and Kelly (2002) conducted an eight-week experiment in which a cognitive-linguistic group and a traditional group were both taught 28 phrasal verbs containing *up*, *down*, *in*, and *out*. On the immediate posttest, the cognitive group outperformed the traditional group. Taken together, these three studies indicate that instruction grounded in conceptual metaphor is more effective for phrasal verbs than traditional grammar-translation approaches.

Condon (2008) extended earlier work along five dimensions—participant sample, number of target phrasal verbs, treatment duration, assessment methods (including a delayed posttest), and the magnitude of the treatment effect. The results again corroborated Boers (2000): conceptual metaphor helps learners better grasp phrasal-verb meanings, thereby improving accuracy on related tasks. Additional findings included: (i) explicit instruction in conceptual metaphor benefits the teaching of English phrasal verbs; (ii) cognitive-linguistic methods can be successfully integrated into existing curricula to yield superior long-term outcomes; and (iii) such methods are particularly well suited to relatively concrete instances and to vocabulary items amenable to cognitive-linguistic stimulation.

Beyond overall effectiveness, researchers have explored memory retention and autonomous meaning prediction. Yasuda (2010) examined Japanese learners' acquisition of phrasal verbs via conceptual metaphor, comparing a cognitive-linguistic treatment with traditional instruction. The experimental group demonstrated better mastery of the target items and greater success in transferring the theory to infer the meanings of novel phrasal verbs—an insight especially pertinent to L2 contexts where learners' L1s differ markedly from English. With 45 Iranian learners, Ganji (2011) compared translation, sentence contextualization, and metaphorical conceptualization. Although immediate posttest differences were not significant, on the delayed test and on tests involving untaught phrasal verbs, metaphorical conceptualization and sentence contextualization significantly outperformed translation. This pattern suggests that these approaches better support long-term retention and learners' ability to predict phrasal-verb meanings.

IV. DISCUSSION & CONCLUSION

Broadly speaking, research on the application of conceptual metaphor to vocabulary instruction emerged earlier abroad than in China. Both international and domestic studies nonetheless attest to its feasibility and pedagogical implications, and on this basis have proceeded to empirical verification. Most scholars employ comparative designs to demonstrate the feasibility and effectiveness of conceptual-metaphor-based approaches in vocabulary teaching and acquisition, and have subsequently extended their inquiries to examine effects on learners' retention of word meanings and their autonomous inference of novel meanings.

In terms of instructional materials, the majority of studies selected 3–5 target items, with the largest sets

including up to 10 items. As for participants, samples have included learners from European contexts (where the L1 shares similarities with English) as well as from Asian contexts (where L1–L2 similarity is lower). Participants are typically cognitively mature and older—professional learners, university students, or secondary-school students—whereas studies involving younger learners (e.g., primary school pupils) are relatively scarce, plausibly because conceptual metaphor constitutes a higher-order cognitive operation that may pose greater difficulty for children. Despite differences in proficiency, nationality, and age, all participants in these studies were learning English as a second or foreign language.

V. LIMITATIONS & FUTURE DIRECTIONS

i. Participant profile. As the foregoing review indicates, most studies have focused on L2 learners at intermediate proficiency or above, with little work targeting younger learners and those at lower proficiency levels. Future research should extend to these populations to provide a more comprehensive test of the feasibility of conceptual-metaphor-informed vocabulary instruction.

ii. Scope of target items. The majority of studies examine only 3–5 high-frequency items, and even the largest samples include at most ten words—far short of what is needed in real classrooms. Given the costs of scaling up item-by-item experiments, future work might instead derive generalizable pedagogical procedures for different lexical types, yielding methods applicable across wider sets of vocabulary.

iii. Lexical domains. Existing research concentrates on prepositions, polysemous words, and phrasal verbs, with relatively little attention to other categories (e.g., gerunds, denominal verbs). While conceptual metaphor has clear advantages for lexicon with inherently spatial semantics, future studies should explore applications to a broader range of lexical types to open new pathways for L2 vocabulary instruction.

iv. Learning outcomes beyond recognition. Although most studies repeatedly confirm the effectiveness of conceptual metaphor in vocabulary teaching, few investigate learners' productive use of the target items—e.g., whether students can appropriately and accurately deploy them in writing and conversation, or whether their ability to form semantic associations has improved. These are promising directions for subsequent research.

v. Learning-to-learn and higher-order thinking. Reported outcomes are typically framed in terms of expanded linguistic knowledge and enhanced language ability, without recognizing that learning vocabulary via

conceptual metaphor is itself a form of learning capability and an exercise in higher-order cognition.

vi. Underlying mechanisms. Current studies, using tests, questionnaires, and interviews, document positive cognitive outcomes but seldom probe the mechanisms that produce them—i.e., what cognitive changes occur as learners engage with metaphor-based instruction. Future research should examine how conceptual metaphor shapes the process of L2 vocabulary learning. Starting from the mechanisms may enable more principled pedagogical use of conceptual metaphor and, ultimately, better support for vocabulary acquisition.

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